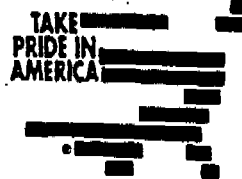




United States Department of the Interior



FISH AND WILDLIFE SERVICE

Post Office Box 1306

Albuquerque, N.M. 87103

In Reply Refer To:
R2/FWE-SE

AUG 13 1992

Larry Henson, Regional Forester
Southwestern Region
USDA Forest Service
517 Gold Avenue SW
Albuquerque, New Mexico 87102

Dear Mr. ~~Henson~~ *Larry*:

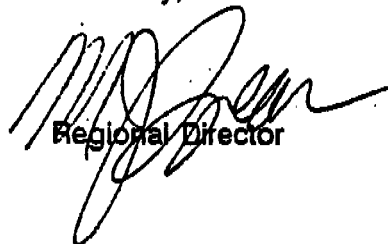
At the Goshawk Task Force (GTF) meeting March 3 and 4, 1992, Goshawk Task Force Chairman Sandy Boyce invited GTF members to provide comments to the Goshawk Scientific Committee (GSC) on their "Recommendations for Goshawk Management in the Southwestern Region" (Recommendations). Although we were also told at that March meeting that the Recommendations were "final", the Fish and Wildlife Service's (Service) comments are enclosed. Your June 24, 1992, announcement in the Federal Register providing Notice of Intent (NOI) to prepare an Environmental Impact Statement for amendment of National Forest Plans to include guidelines for management of Mexican spotted owl (MSO) and northern goshawk habitat will also allow public comment on the "strategy" and how it relates to the MSO.

Nevertheless, we believe there are still shortcomings in the Recommendations, which if not corrected, raise considerable doubt about the future of northern goshawks in the Southwest. Recently, we have rejected two separate petitions to list the northern goshawk under the Endangered Species Act (Act) because the petitions failed to identify a listable entity (a definable population unit that would meet the definition of "species" in the Act). Please do not mistake our rejection of those petitions as an indication of a lack of concern for the northern goshawk in the Southwest. Under the Migratory Bird Treaty Act, the Service retains responsibility for the fate of the goshawk. We are not convinced your strategy will protect the viability of the goshawk in the Southwest. We would like the opportunity to cooperate with you as we are on the MSO to develop a strategy we both can support.

Overall, the Recommendations' prescriptions for goshawk management are an improvement over current guidelines outlined for individual Southwestern Region forests in their forest plans. The Recommendations are also a valuable and humbling exploration of the complexities of ecosystems management. The Service looks forward to working cooperatively with the Forest Service, toward enhancing our scientific knowledge, to the point where credible ecosystem management

is a reality. We wish to do so with a realistic perspective on our scientific capabilities. We agree with the AGFD that more cooperative interagency work is necessary, to develop a goshawk management plan that can be jointly supported by all natural resource management agencies involved.

Sincerely,

A handwritten signature in black ink, appearing to read 'L. Henson', written over the typed name 'Regional Director'.

Regional Director

Enclosure

cc:
Director, Arizona Game and Fish Department, Phoenix, Arizona
Director, New Mexico Department of Game and Fish, Santa Fe, New Mexico
Station Director, Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colorado
Field Supervisors, Ecological Services Field Office, FWS, Arizona and New Mexico

Preliminary Comments on the U.S. Forest Service's (FS) Goshawk Scientific Committee (GSC) "Management Recommendations for the Northern Goshawk in the Southwestern United States (Recommendations)."

Basic Approach.

The Recommendations are founded on a series of premises which are poorly supported by published data. These are:

1. That little information is available on goshawk foraging habitat, but what exists suggests they are habitat generalists.
2. That in the Southwest, goshawks are limited by prey abundance.
3. That the most important goshawk prey species in the Southwest are known.
4. That enough is known of the 14 prey species' biology to define and manage for their habitats.
5. That suitable goshawk foraging habitat and sufficient prey will be provided by managing for those prey species.

The above premises are discussed individually below, followed by discussions on other aspects of the Recommendations.

Premise #1: That little information is available on goshawk habitat, but what exists suggests they are habitat generalists.

A considerable body of literature contradicts the Recommendations' position that goshawk foraging habitat is poorly understood. This literature also contradicts the Recommendations' characterization of the goshawk as a "forest habitat generalist" (page 3).

The Recommendations use flawed reasoning in suggesting (page 4) that, because goshawks may encounter a mosaic of forest types in their home ranges, they use all of those forest types. Most literature indicates that, given a range of forest types, goshawks prefer certain types over others. Fischer (1986) found that goshawks preferred older forest with large trees for both nesting and foraging. That author did not find, as the Recommendations suggest on page 4, that goshawks hunted in a wide range of forest types and conditions. Preferential use of woodlands over openings and edges was also described by Kenward (1982). Relatively high nesting success and density of nesting pairs in large areas of mature forest suggest mature forest is optimum as goshawk habitat (Anonymous 1989, Crocker-Bedford 1990, Patla 1991, Service and AGFD, unpublished data).

The goshawk does occur in forests of a wide variety of tree (and prey) species compositions, and likely encounters a variety of forest structural conditions. However, the evidence strongly associates northern goshawk nesting and foraging habitat with large tracts of mature, often close-canopied forest (Bloom *et al.* 1985, Fischer 1986, Fowler 1988, Reynolds 1988, Anonymous 1989, Crocker-Bedford 1990, Patla 1991, Ward *et al.* 1992).

¹This draft report has been provided to the FS for review.

In contrast to the volume of evidence associating goshawks with mature forests, the GSC presents no data suggesting that goshawks need, prefer, or thrive in the mosaic of forest age classes and openings prescribed in their Recommendations. Several authors (e.g., Fischer 1986) noted that the older stands preferred by goshawks often have more open understories than younger stands. Where a mosaic of woodlands and open areas was available, Kenward (1982) reported goshawks preferred woodlands, where the great majority of prey captures took place.

The majority of published evidence suggests that the Recommendations' forest mosaic will be inferior or unsuitable goshawk habitat. The deleterious effects of forest fragmentation, because of timber harvest, on goshawks are widely recognized (Bloom *et al.* 1985, Fowler 1988, Kennedy 1989, Crocker-Bedford 1990, Patla 1991). Published data indicate that forests that are too open, or have too many openings, may be detrimental to goshawks. In North America, opening up forest structure may favor other species which prey on goshawks, or are adapted to more open conditions. Patla (1991) found great grey owls nested in four former goshawk nests, where three of those four sites were in or near areas of timber harvest. Moore and Henny (1983) discussed replacement of goshawks by species adapted to more open forest conditions, especially red-tailed hawks and great-horned owls. On the Kaibab National Forest in Arizona, red-tailed hawks, great-horned owls, and ravens replaced goshawks at several nesting territories following timber harvest (Zinn and Tibbitts 1990).

The Recommendations presented no data to support the premise that goshawks are impaired in foraging in dense or multi-storied forests, and therefore require open conditions. The GSC presents only an intuitive argument, based on goshawk body size. An equally strong intuitive and ecological argument is that the goshawk is morphologically and behaviorally adapted to a complex structural environment. The Recommendations characterize the goshawk as a "short-sit-and-wait-short-flight" predator. As such, and with an Accipiter's high maneuverability and abrupt bursts of speed, the goshawk is clearly adapted to the complex, closed physical environment of forests where visibility is limited and obstacles are numerous (Fowler 1988). Numerous published accounts describe the goshawk's capability, even notoriety, for recklessly and successfully pursuing prey into and through dense cover, thickets, and even brushpiles (Bent 1937, Wescott 1964, Beebe 1974, Palmer 1988, Johnsgaard 1990).

Fischer (1986) hypothesized that resource partitioning among the three North American Accipiters is related to body size and habitat structure. He speculated that the smaller Cooper's and sharp-shinned hawks foraged in younger and/or denser stands, while goshawks used older forests which often had open understories. However, Reynolds and Meslow (1984) found that foraging resource partitioning was related to prey size and taxa, with differences in habitat selection only described for the nest stands (Reynolds 1983).

Premise #2: That in the Southwest, goshawks are limited by prey abundance.

The Recommendations' observation that goshawks, like some other raptors, should be limited by prey availability is valid. However, the Recommendations only consider simple prey abundance, not prey availability (Appendix 2, also Table 5). The Recommendations present no data documenting synchronous fluctuations in populations of goshawk prey and goshawks in the Southwest.

The Recommendations acknowledged that the only documentation of goshawk populations being closely tied to fluctuations in prey populations comes from high latitudes (McGowan 1975, Mueller et al. 1977). Goshawks in higher latitudes tend to prey on fewer species than in the Southwest, so fluctuations in the availability of any single species could affect goshawk populations. Galushin (1974) observed that synchronous fluctuations in predator and prey populations are most marked in open-country predators. He specifically cited raptors with broad-based diets (particularly forest species) as predators with little or no fluctuation. The Recommendations acknowledged that prey base diversity is higher in the Southwest than at higher latitudes. The Recommendations acknowledged that reductions in several prey species might not affect southwestern goshawk populations, because other potential prey species would remain. The Recommendations implicitly acknowledge that the premise that prey abundance is limiting in the Southwest is not supported by data, and is contradicted by existing evidence. Considerable evidence suggests that reductions in goshawks in the Southwest might result from changes in habitat structure, rather than simple prey abundance.

Prey availability is a function of prey abundance, and the susceptibility of prey to the foraging ecology of the goshawk. Plentiful literature demonstrates that the goshawk is specialized to capture prey in the complex structural environment of a forest. Prey availability is a function of the availability of the structural environment to which the goshawk is behaviorally and morphologically adapted.

Overall, the Recommendations postulate that goshawks are more general in their use of habitat than in their use of prey. The body of evidence suggests the converse, that goshawks are more specific in their selection of foraging habitat than in selection of specific prey species. Goshawks will prey on whatever exists within a structural environment conducive to their foraging strategy. Evidence supports the hypothesis that prey availability is becoming limited due to changing forest structure.

The Recommendations' prey-management approach is questionable at a conceptual level. Even if that approach were supported by hard data, the specific prescriptions contained in the Recommendations would be questionable, as discussed in Premise #3 and Premise #4.

Premise #3: That the most important goshawk prey species in the Southwest are known.

The Recommendations' statement that the diets of goshawks have been "extensively studied" in the Southwest is inaccurate. The Recommendations use only Kennedy (1989) and Mannan and Boal (1990) as information from the Southwest. Mannan and Boal's 1990 information was collected on the Kaibab National Forest (North Kaibab Ranger District) in a year of poor goshawk reproduction (Zinn and Tibbitts 1990). Their findings may document a diet on which goshawks do not thrive. Several of the Recommendations' 14 selected species (blue grouse, band-tailed pigeon, mourning dove, Williamson's sapsucker, red-naped sapsucker) are poorly represented, or are unrepresented, in Southwestern goshawk diets. The Service believes the Recommendations were developed with too little information on goshawk diets in the FS Southwestern Region.

The Recommendations characterize the goshawk as a forest habitat generalist. If goshawks forage in a wide variety of forest habitat types (including openings), they are encountering and using a wide variety of prey species. This would suggest that goshawks are also prey generalists, using whatever prey species are available. The goshawk's holarctic distribution

further suggests that the species is capable of using a wide variety of prey species. Thus, an approach that seeks to produce specific, selected prey species is misdirected. The goshawk is apparently encountering, and using, a variety of species proportional to the productivity and biodiversity of habitats it forages. Creating the structural forest environment to which goshawks are adapted will create availability of prey.

Premise #4: That enough is known of the 14 prey species' biology to define and manage for their habitats.

In Appendix 2, the Recommendations make it clear that, for most of the selected prey species, information on specific habitat needs is limited. Nine of the 14 selected prey are birds. Ironically, the best information on the habitat needs of these species relates only to nesting, as the Recommendations feel is true for the goshawk. However, nest site habitat is more thoroughly described for the goshawk than for these prey species. No avian prey species' foraging habitat is as well described, by anecdotal observation and telemetry, as is the goshawks'. The situation is similar for the mammalian prey species. Only general ecological information is presented. Specific information on crucial habitat components is not presented. Compared to most of the selected prey species, the goshawk is an intensively studied organism. The Recommendations built a management prescription based on the vaguely understood habitat needs of 14 species, rather than the better understood habitat needs of the goshawk.

The transition from Table 5 (desired forest conditions for selected prey) to Table ES-1 (desired forest conditions for the goshawk) is frequently unclear. Table 5 displays the high importance of Vegetational Structural Stages (VSS) 6, 5, and 4, in maintaining populations of selected prey species. However, this importance of older VSS's is not reflected as strongly in Table ES-1. In Table 5, 45 percent of the Recommendations' ratings are in VSS's 5 and 6, but Table ES-1 calls for only 40 percent of the foraging area to be in these VSS's. Even these prescriptions of Table 5 are difficult to evaluate. Given the lack of data on habitat needs for many species, the translation of individual species' descriptions into the Table 5 ratings is often unclear. The GSC appears to have done for many prey species what it declined to do for the goshawk; prescribe habitat needs based on limited information.

Premise #5: That by producing abundant prey, suitable goshawk habitat and available prey will be provided.

The Recommendations clearly are derived from a premise that goshawks in the Southwest are limited by prey abundance (page 90). As discussed under Premise #2, the Recommendations fail to support that hypothesis. The Service suggests that the FS consider the more ecologically complex side of prey availability discussed under Premise #2, that of prey availability being a function of habitat structure.

If goshawks are forest habitat generalists as the Recommendations assert, then they must be capable of capturing a wide variety of prey encountered in various habitats. Thus goshawks would be prey generalists, and managing for selected prey species would be inappropriate and unnecessary. Six (42 percent) of the 14 selected prey are species of extremely broad habitat needs: American robin, cottontail rabbit, hairy woodpecker, mourning dove, and northern flicker. These should be fairly abundant not only in a variety of forest habitats, but in a wider range of ecosystems. No data, and no logic, support being concerned about their abundance. This fact supports that it is not simple abundance, but prey availability, that is the problem.

Ultimately, the Recommendations propose that if prey biomass is grown, it will be available to the goshawk. We suggest that, if information on foraging habitat is truly lacking at this time, it may be more prudent to grow the structural environment known to support goshawks: extensive mature forest. The majority of evidence indicates that, because goshawks occur in that habitat, sufficiently abundant and available prey will also be provided in mature forest.

Summary

11

The Recommendations' fundamental premises are poorly supported and often contradicted by the best available information. Information is admittedly limited on some points, but the GSC appears to have discounted existing information in favor of poorly supported, untested hypotheses. In summary, we re-examine the premises driving the Recommendations, and the best available information:

1. That little information is available on goshawk foraging habitat, but what exists suggests they are habitat generalists. Considerable information documents the goshawk as a species of mature forest, for nesting and foraging. Little information defines it as a forest habitat generalist.
2. That in the Southwest, goshawks are limited by prey abundance. No evidence suggests that goshawk numbers in the Southwest fluctuate in response to fluctuations in abundance of prey. Prey availability, as a function of habitat structure, is therefore a concern.
3. That the most important goshawk prey species in the Southwest are known. Selection of 14 prey species is poorly supported by data on goshawk diets in the Southwest. Evidence suggests that goshawks are prey generalists, so managing for specific prey species is misdirected.
4. That enough is known of the 14 selected prey species' biology to define and manage for their habitats. The habitat needs of the Recommendations' selected prey species are no better known, and are typically less known, than those of the goshawk.
5. That by managing for the 14 selected prey species, suitable goshawk foraging habitat and available prey will be provided. The available information suggests that the converse is more scientifically sound. By providing the mature forest to which goshawks are behaviorally and morphologically adapted, prey availability will be provided.

DISCUSSION OF OTHER RECOMMENDATIONS

Nest Sites

We disagree with the GSC strategy of suggesting minimum values instead of targets. Minimums too often become targets, and management for minimum habitat characteristics is unlikely to benefit the species. We suggest presenting a target range, average, and a minimum value. The available data contradicts the recommended canopy closure of 50 percent in Table ES-1. Saunders (1982) found a mean of over 76 percent canopy closure for nest stands, and

Hall (1984) found 94 percent closure. In Arizona, Crocker-Bedford (1988) reported goshawks preferred stands with greater than 80 percent canopy closure for nesting. We recommend defining target values that better reflect the data: a minimum canopy closure of 60 percent in the nest stand, with 50 percent of nest stand acres in excess of 75 percent canopy closure.

The Recommendations need to clarify how replacement nest stands will be selected. On page 24, it is suggested that they could be comprised of stands in VSS's 1, 2, and 3. These VSS's would not be suitable for nesting now, and will not be for many years. It is our understanding that one of the functions of the replacement nest stands is to provide alternate nest sites for the long term and in the event of catastrophic loss of existing nest stands. Thus, the desired conditions for the replacement stands should be closer to those for the currently suitable nest areas.

Post-fledging Family Areas (PFA's)

Again, we recommend against defining only minimum values for desired forest conditions. Further, the PFA as originally described by Kennedy (1989) is a transitional area between the nest stands and foraging habitat in terms of behavior and use. The Recommendations have translated this into a transitional area in habitat type. What data supports management of the PFA as a transition between nest stand habitat and more open forests in the foraging area? Kennedy (1989) and even these Recommendations state that the PFA forest conditions are similar to the nest stand. More subjectively, Marquiss and Newton (1982) noted that "Most nests were in large blocks of mature woodland...." Anonymous (1989) examined two tracts of forest land, each containing several pairs of breeding goshawks. The nest stands and general surroundings, which likely corresponded to the PFA, were described. It was reported that "all of the plantations chosen by the goshawks are very old, almost all being at the end of their commercial rotation...this situation also indicates a clear preference by Goshawks for mature woodland in which to breed." Ward, et al. (1992) found that high canopy closure may be important to breeding goshawks in areas up to 2500 acres around the nest site.

Even if the interpretation of the PFA as a transitional habitat is used, the PFA, as prescribed, is not transitional between the nest stands and the foraging area. Table ES-1 prescribes essentially the same (generally open and with high proportions of young VSS's) forest conditions in the PFA as in the foraging area.

Foraging Area

Again, we recommend against defining only minimum values for desired forest conditions. The prescriptions for both the PFA and foraging area should provide not only the forest conditions of microclimates and cover for nesting and a diversity of prey, but also the physical environment to which the goshawk, an Accipiter hawk, is morphologically and behaviorally adapted. We have reviewed the revisions to Table ES-1 that were suggested by the Arizona Game and Fish Department (AGFD) on April 27, 1992. The values suggested by AGFD are worthy of discussion by the FS, AGFD and Service.

Presettlement Conditions

We have discussed how the Recommendations are not well-supported for goshawks. They are also not well-supported as management to re-create Southwestern forest conditions prior

to European settlement. This is due to lack of rigorous descriptions of these "presettlement" conditions, not a failing of the Recommendations. The Service is concerned that several limited, local studies on hypothetical "presettlement" forest conditions have been accepted without adequate critical review, and have been extrapolated too widely over the Southwest. For example, Covington and Moore's (1991) unpublished, often-cited study is flawed on a number of points. The authors classified their study area (Bar M Watershed) as an untreated control area, yet immediately discuss counting stumps (harvested trees) on study plots. In fact, 43 percent of the authors "presettlement" trees on sample plots were counted as stumps. Clearly, the Bar M watershed was a logged region, not an untreated study area. Covington and Moore's premise is that fire suppression was the primary agent in creating a forest dense with saplings and pole stands, yet they ignore the fact that virtually half the overstory trees were removed by timber harvest. Clearly, that harvest would have opened the canopy and allowed considerable establishment of seedlings, saplings and poles. The authors' theory on the significance of fire suppression is seriously weakened by their failure to assess the history of fire and fire suppression on and around the study area, through examination of core samples and FS records.

In addition to these weaknesses, it must be noted that Covington and Moore's study site presented unique climatic, hydrological, and edaphic conditions. Even if their conclusions were not weakened by faults in study design, those conclusions could not be extrapolated across the rest of Arizona, much less the rest of the Southwest. The authors note these limitations. In short, the conditions of southwestern forests prior to settlement by Europeans has not been satisfactorily determined. Given the large scale high diversity of physiographic conditions in the Southwest, presettlement conditions were certainly diverse.

"Suspected" Population Declines

The Recommendations contain many references to goshawk population declines that are qualified as "suspected," or "possible." These qualifications have been echoed in Goshawk Task Force meetings and in various media articles on the goshawk issue. We suggest that the Recommendations discuss the available information which documents goshawk declines. For example, Patla (1991) found that 38 percent of known nest clusters were occupied in 1990, a low number. From 1988 through 1990, 51 percent of nest clusters in undisturbed and pre-harvest sites were active. Ten percent of nest sites in post-harvest sites were active. Patla also found adjusted reoccupancy rates as follows: pre-harvest: 72 percent; during harvest: 67 percent; post-harvest 18 percent. Crocker-Bedford (1990) found that productivity ranged from 2.0 nestlings/nest in unharvested locales to 1.8 with 25 percent of acres harvested, 1.0 with 50 percent of acres harvested, to 0.0 with 75 percent of acres harvested.

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